Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
The Uniendo a Puerto Rico Fund and the	)	WC Docket Nos. 18-143, 10-90,
Connect USVI Fund, Connect America Fund,	)	and 14-58
ETC Annual Reports and Certification	)	

COMMENTS OF SES AMERICOM, INC. AND O3B LIMITED

SES Americom, Inc. and its affiliate O3b Limited (together, "SES")[1] welcome the opportunity to submit these comments in response to the Federal Communications Commission's ("FCC" or "Commission") Notice of Proposed Rulemaking, which seeks comment on how to best structure the allocations of the second stage of the Uniendo a Puerto Rico and Connect USVI Fund ("PR/USVI Fund").[2] As the Commission now considers permanent approaches to restore and expand broadband connectivity in Puerto Rico and the U.S. Virgin Islands, it should adopt technology neutral standards that enable PR/USVI Fund applicants to integrate cost-

[1] SES, one of the world's largest commercial communications satellite operators and is the only company that operates both geostationary ("GSO") and non-geostationary ("NGSO") satellite fleets. SES entities operate more than 50 GSO satellites able to reach 99% of the world's population, many of them pursuant to Commission authority. These spacecraft serve broadcasters, direct-to-home ("DTH") service providers, and corporate and government customers worldwide with offerings that include video and audio content distribution, DTH, private networks, broadband, satellite news gathering, aeronautical and maritime services, and mobile backhaul.

O3b, a wholly-owned subsidiary of SES, is a global broadband satellite system in Medium Earth Orbit ("MEO") that operates a constellation of sixteen NGSO satellites in the Ka-band and offers high-speed, low-latency broadband connectivity where coverage from terrestrial networks is limited or non-existent. Since O3b satellites are at the MEO altitude of 8062 km, users on O3b's system typically experience round trip latency of less than 150 milliseconds ("ms"), approximately one quarter the latency of geostationary orbit satellites. O3b does not directly serve consumers or end users; instead, it offers middle mile capacity to large service providers that use O3b's satellite capacity to deliver service to end users, utilizing the 27.6-28.4 and 28.6-29.1 GHz band for its uplink and 17.8-18.6 and 18.8-19.3 GHz band for its downlink.

[2] *The Uniendo a Puerto Rico Fund and the Connect USVI Fund, et al*. Order and Notice of Proposed Rulemaking, FCC 18-57 (2018) ("PR/USVI Fund NPRM").

effective satellite broadband technologies into their networks, including SES' GSO and low-latency NGSO connectivity.

SES supports the FCC's efforts to "rebuild fixed and mobile voice and broadband networks in [Puerto Rico and the U.S. Virgin Islands] and harden them against future natural disasters."[3] SES provided critical communications restoration services in the aftermath of Hurricane Maria through both its GSO and NGSO fleets.[4] For example, SES Network's O3b FastConnect Solution was used to support Alphabet's Project Loon and local telecommunications operations to provide reliable, high-performing 4G/LTE mobile connectivity to parts of the island. The coverage of the combined Project Loon-O3b network extended existing carrier service to the "hardest hit parts of the island" where there were no cell towers available.[5]

The Commission seeks comment on whether it should "establish weights to account for proposals offering… 'lower latency over higher latency,'" broadband service to Puerto Rico and the U.S. Virgin Islands.[6] The Commission's specific proposal, however, would use the same latency standard of 100 ms that it adopted in its previous Connect America Fund auction.[7] Adopting this latency standard would be arbitrary, as it would impede PR/USVI Fund applicants' ability to serve rural areas with high-performance broadband using connectivity services such as

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[3] *Id*. at ¶ 5.
[4] *See Public Safety and Homeland Security Bureau Seeks Comment on Response Efforts Undertaken during 2017 Hurricane Season*, Comments of SES S.A. and O3b Limited, PS Docket No. 17-344 (filed Jan. 22, 2018).
[5] *Hurricane Maria destroyed 95% of Puerto Rico's cell sites*, TELEGEOGRAPHY (Sept. 22, 2017), https://www.telegeography.com/products/commsupdate/articles/2017/09/22/hurricane-maria-destroyed-95-of-puerto-ricos-cell-sites/ (last visited July 26, 2018); *Google Using O3b Satellites to Connect Project Loon Over Puerto Rico*, SpaceNews, Oct 23, 2017 http://spacenews.com/google-using-o3b-satellites-to-connect-project-loon-over-puerto-rico/. This off-ground NGSO satellite-supported connectivity provides basic communication and internet activities for customers in disaster-affected areas. This includes SMS, text, email, and "basic internet," but no voice service or calling.
[6] PR/USVI Fund NPRM at ¶ 55.
[7] *Id*. at ¶ 81 n.106.

SES' low-latency NGSO satellite capacity or its highly-reliable GSO data service. SES' MEO satellite system is able to support 4G LTE due to a latency as low as 120 ms, allowing end users to enjoy real-time interactive broadband applications.[8] With this latency level, SES' customer expectations are met for typical broadband applications like VoIP, cloud-based services, video and voice conferencing, video streaming, and real-time multiplayer video games.[9] A latency threshold of 100 ms is arbitrary because it would not allow PR/USVI Fund applicants to access satellite connectivity that can support the same broadband applications that would otherwise be available via terrestrial infrastructure.

SES also supports high-speed broadband through its GSO satellites.[10] For example, SES partnered with OptimERA to provide reliable GSO C-band capacity to deliver reliable and affordable internet connectivity to Unalaska, Alaska.[11] Indeed, many critical broadband-enabled applications are not latency sensitive, such as video streaming, web browsing, social media, and email, which also makes GSO connectivity an important option for supporting broadband service.

Because there is a demonstrated capability to deliver broadband applications via satellite with a latency of 120-150 ms, SES suggests that if the FCC decides to establish a latency benchmark, it should establish one that is higher than 100 ms. The Commission should base its

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[8] *See* O3b, *What is Network Latency and Why Does It Matter*, http://www.o3bnetworks.com/wp-content/uploads/2015/02/white-paper_latency-matters.pdf (last visited July 26, 2018).

[9] O3b customers have successfully demonstrated that the O3b satellite system supports cloud-based services such as Citrix and Sharepoint, video and voice conferencing services such as Skype and Blue Jeans, video streaming services such as Netflix and YouTube, and multi-player video games such as Halo and Call of Duty. *See, e.g.*, *Cruise Ships Add Fast Internet - For Gaming*, THE MARITIME EXECUTIVE (Sept. 28, 2016), https://www.maritime-executive.com/article/cruise-ships-add-fast-internet-for-gaming#gs.7LDfp1w.

[10] *See, e.g.*, SES Networks, *Connecting Underserved Regions Case Study* (Nov. 29, 2017), *available at* https://www.ses.com/case-study/unalaska.

[11] *Id.*

latency threshold on real world needs for advanced telecommunications applications. This will ensure that the Commission does not undermine the reach of quality broadband service by imposing an artificial threshold when systems with latencies higher than 100 ms already support real-time broadband applications.

Enabling the inclusion of satellite connectivity in the second stage of the PR/USVI Fund would empower applicants to bring service to the most rural areas of the territories, which were either already unserved by broadband or were hardest hit by Hurricane Maria. Applicants must be able to take advantage of the full range of connectivity options, including satellite connectivity, to support broadband expansion in these hard-to-serve rural areas recovering from Hurricane Maria.

SES appreciates the rapid regulatory response by the Commission and its staff to facilitate the speedy reconstruction, expansion, and hardening of broadband infrastructure in Puerto Rico and the U.S. Virgin Islands in the wake of Hurricane Maria, and its efforts in this proceeding to enable improved responses to any future natural disasters. SES urges the Commission to adopt technology neutral standards without arbitrary latency requirements so that PR/USVI Fund applicants also have the option to integrate cost-effective and high-performance satellite broadband technologies into their networks.

Respectfully submitted,

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